

John & Kernick
FORM P1

REPUBLIC OF SOUTH AFRICA
PATENTS ACT, 1978
APPLICATION FOR A PATENT AND
ACKNOWLEDGEMENT OF RECEIPT
Section 30(1) - Regulation 39

REPUBLIC OF SOUTH AFRICA
REVENUE

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REPUBLIEK VAN SUID AFRIKA
HASR 376

The grant of a Patent is hereby requested by the undermentioned applicant(s) on the present application filed in duplicate

21

01

Official application No.

22

Lodging date

J&K Reference

922101

23rd March, 1992

P 11395 ZA/PBJ

71

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54

Title of Invention

VEGETABLE MILK.

XX

The applicant claims priority as set out in the accompanying form P2. The earliest priority claimed is - ZA 91/0601 28th January, 1991.

This application is for a Patent of Addition to Patent/Application No.

This application is a fresh application in terms of S 37 and based on application no.

This application is accompanied by:

1a A single copy of a provisional specification of pages

XX

1b Two copies of a complete specification of 16 pages

2a Informal drawings of sheets

2b Formal drawings of sheets

XX

3. Publication particulars and abstract (form P8 in duplicate)

4. A copy of Figure of the drawings for the abstract

5. Assignment of invention (from the inventors) or other evidence of title

6. Certified priority documents (documents)

7. Translation of priority documents (documents)

8. Assignment of priority rights

9. A copy of the form P2 and the specification of S.A Patent Application

21

01

XX

10. A declaration and power of attorney on form P3

11. Request for ante-dating on form P4

12. Request for classification on form P9

13a Request for delay of acceptance on form P4

13b

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FORM P7

REPUBLIC OF SOUTH AFRICA
PATENTS ACT, 1978

COMPLETE SPECIFICATION

(Section 30(1) - Regulation 28)

21	01	Official application No.	22	Lodging date	J&K Reference
		922101		23rd March, 1992	P 11395 ZA/PBJ
51	International classification				
	A23C				
71	Full Name(s) of Applicant(s)				
	BRIAN ALLAN WINER				
72	Full name(s) of Inventor(s)				
	Brian Allan WINER				
54	Title of Invention				
	VEGETABLE MILK.				

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VEGETABLE MILK

INTRODUCTION TO THE INVENTION

This invention relates to a vegetable milk which has substantially no animal fats or lactose and which may be used as a substitute for cows milk.

The invention extends to a method of making the milk as well as to products made from the milk.

/BACKGROUND TO

BACKGROUND TO THE INVENTION

It is widely accepted that the ingestion of animal fats (which are saturated fats) and lactose should be minimised for most people. As cows milk is an important dietary component and contains a high proportion of animal fat and lactose, the ingesting of this milk is considered potentially harmful.

Milk substitutes have been proposed and marketed to assist individuals in decreasing this dairy milk intake. Soya milk is an example of such a substitute.

A problem associated with soya milk is that of colour. Soya milk is brownish and, for this reason, not acceptable to many dairy milk users.

An object of the invention is to provide a vegetable milk which is white in colour.

SUMMARY OF THE INVENTION

According to the invention, a vegetable milk comprises

/a suspension

a suspension of finely divided vegetable protein in an emulsion of vegetable fat and water.

Further, according to the invention, the milk includes at least one suitable stabiliser, emulsifier and buffer.

Still further, according to the invention, the milk includes a sweetening agent such as sugar and a flavouring agent.

Still further, according to the invention, the milk includes vitamin additives and mineral additives.

Still further, according to the invention, the milk contains from 0,3 weight percent to 50 weight percent of vegetable fat and from 0,4 weight percent to 4 weight percent of vegetable protein in the form of soya protein.

Still further, according to the invention, the vegetable fat is a hydrogenated polyunsaturated fat and preferably an oil such as sunflower seed oil or soya bean oil.

/Still further,

Still further, according to the invention, the vegetable protein is a low viscosity or non gelling soya protein.

Still further, according to the invention, the emulsifier is sodium stearoyl lactylate, the stabiliser is a carageenan gum such as that sold under the name Mac-line 131 by Vaessen Schoemaker and the buffer is di-potassium phosphate.

The invention also extends to products made from the vegetable milk as defined, the products including flavoured milks, custard, cheese, yoghurts, fruit juice and milk mixtures, cream, icecream, desserts, baby foods and maas.

The invention also extends to a dehydrated powdered vegetable milk substantially as defined above.

The invention also provides a method for the manufacture of the milk as defined, the method including the steps of

i) preparing a water phase by

/ a. dissolving the

- a. dissolving the buffer in a suitable quantity of water;
 - b. adding the stabiliser, vegetable protein and any of sugar, salt and minerals to the water; and
 - c. heating the water to between 50°C and 90°C;
- ii) making a fat phase by heating the fat and emulsifier together to between 50°C and 90°C;
 - iii) mixing the fat phase into the water phase; and
 - iv) passing the mixture under pressure through a homogeniser.

Further, according to this aspect of the invention, any vitamins and flavourants are added to the mixture of step iii.

Still further, according to the invention, the temperature to which the water phase and fat phase are heated is about 80°C.

/Still further,

Still further, according to the invention, the vegetable milk as defined may be dehydrated to powdered form.

DETAILED DESCRIPTION OF A PREFERRED EXAMPLE OF THE INVENTION

In this example of the invention, a non dairy milk is provided.

The milk is based on a suspension of highly divided vegetable protein in an emulsion of hydrogenated polyunsaturated sunflower seed oil in water. The composition of the milk, including various additives such as vitamins and added minerals, is as follows:

	Contents per 100 ml	R.D.A. for persons 4 years and older
Protein	0,8g	-
Polyunsaturated Fat	3,3g	-
Carbohydrate	2,5g	-
Calories	44 kcal	-

/VITAMINS Contents

VITAMINS

Contents

per 1000 ml

Vitamin A	1250	IU	25%
Vitamin D3	100	IU	25%
Vitamin E	3,75	IU	25%
Vitamin C	11,25	mg	25%
Biotin	0,08	mg	25%
Folic Acid	0,10	mg	25%
Pantothenic Acid	2,5	mg	25%
Vitamin B1	0,38	mg	25%
Vitamin B2	0,45	mg	25%
Vitamin B6	0,50	mg	25%
Vitamin B12	0,75	mg	25%
Nicotinamide	5,00	mg	25%

MINERALS

Contents

per 100 ml

Sodium	100	mg	-
Potassium	75	mg	-
Calcium	144	mg	90%
Chlorine	100	mg	-
Phosphorous	40	mg	25%

The protein is provided by the soya which is in the form of soya isolate. Soya isolate contains approximately 90% of protein. The soya is a product sold under the name Samprosoy 90 NB by Sociedade Algodoeira do Nordeste Brasileiro South America.

/The polyunsaturated

The polyunsaturated fat is provided for by the hydrogenated polyunsaturated sunflower seed oil.

All of the vitamins are non essential to the product and are added to provide at least a percentage of the internationally recognised daily allowance for persons of four years and older.

Similarly, the minerals are non essential. It should, however, be noted that the potassium and phosphorous are provided for by a buffer, di-potassium phosphate, which is used in the method of preparation which is described below.

To prepare the milk, a water phase and a fat phase are made as follows:

WATER PHASE

To a measured amount of water a buffer in the form of di-potassium phosphate is added and the mixture heated to approximately 30° C so that the di-potassium phosphate passes into solution.

/Once the

Once the buffer has dissolved, a premix containing finely divided soya isolate, sugar as a sweetener, salt, calcium and a stabiliser which is a natural gum sold under the name Mac-Line 131 by Vaessen-Schoemaker, are added. The mixture is then heated to about 80°C.

FAT PHASE

The fat in the form of sunflower seed oil is mixed with an emulsifier which is sodium stearoyl lactylate and heated to about 80°C.

The fat is then added slowly to the water phase with continuous stirring. Once thoroughly mixed, the additional vitamins, minerals and any required flavourants are added.

The emulsion formed is then passed through a commercial homogeniser at a pressure of 200 bar and the homogenised milk product packed.

The product is a white emulsion, the brown soya particles being coated with the fat phase and so disguising the colour. With careful flavourant

/additions, the

additions, the taste of the product can be made to be substantially the same as that of cows milk.

As mentioned elsewhere in the specification, the milk has a number of advantages over cows milk, particularly from a health point of view. It is not proposed to enumerate these benefits as they are well known.

The milk, according to the invention, can be made in the form of skim milk, fat free milk or cream, depending upon the concentrations of fat and, furthermore, the milk may be used in the preparation of a number of milk based products, including flavoured milks, custard, cheese, yoghurts, juice/milk mixtures, icecream and dairy food.

Other examples are envisaged in the scope of the invention.

/CLAIMS

20. A product as claimed in claim 19 being one of flavoured milks, custard, cheese, yoghurts, fruit juice and milk mixtures, cream, icecream, desserts, baby foods and maas.

21. A method for the manufacture of the milk as defined, the method including the steps of

- i) preparing a water phase by
 - a. dissolving the buffer in a suitable quantity of water;
 - b. adding the stabiliser, vegetable protein and any of sugar, salt and minerals to the water; and
 - c. heating the water to between 50°C and 90°C;
- ii) making a fat phase by heating the fat and emulsifier together to between 50°C and 90°C;
- iii) mixing the fat phase into the water phase; and
- iv) passing the mixture under pressure through a homogeniser.

/22. A method

8. A vegetable milk as claimed in any of the preceding claims which contains from 0,3 weight percent to 50 weight percent of vegetable fat and from 0,4 weight percent to 40 weight percent of vegetable protein in the form of soya protein.
9. A vegetable milk as claimed in any of the preceding claims in which the vegetable protein is a soya protein.
10. A vegetable milk as claimed in any of the preceding claims in which the vegetable fat is a hydrogenated polyunsaturated fat.
11. A vegetable milk as claimed in claim 10 in which the vegetable fat is a vegetable oil.
12. A vegetable milk as claimed in claim 11 in which the oil is at least one of sunflower seed oil and soya bean oil.
13. A vegetable milk as claimed in claim 9 in which the soya protein is a low viscosity or non gelling soya protein such as that sold under the name

/Samprosoy 90NB

Samprosoy 90NB by Sociedade Algodoeira do Nordeste Brasileiro South America.

14. A vegetable milk as claimed in claim 2 in which the emulsifier is sodium stearoyl lactylate.
15. A vegetable milk as claimed in claim 2 in which the stabiliser is a carageenan gum such as that sold under the name Mac-line 131 by Vaessen Schoemaker.
16. A vegetable milk as claimed in claim 2 in which the buffer is di-potassium phosphate.
17. A vegetable milk substantially as described in the description of the preferred example of the invention.
18. A dehydrated vegetable milk comprising a dehydrated vegetable milk as claimed in any of the preceding claims.
19. A product made from a vegetable milk or dehydrated vegetable milk as claimed in any of claims 1 to 17.

/20. A product

22. A method as claimed in claim 21 in which at least one of vitamins and flavourants are added to the mixture of step iii.
23. A milk as claimed in either of claims 21 or 22 in which the temperature to which the water phase and fat phase are heated is about 80°C.
24. A method as claimed in any of claims 21 - 23 in which the mixture passed through a homogeniser is dehydrated.
25. A method substantially as described in the description of the preferred example set out herein.

DATED on this the 23rd day of March 1992


JOHN & KERNICK
for the Applicant

CLAIMS

1. A vegetable milk comprising a suspension of finely divided vegetable protein in an emulsion of vegetable fat and water.
2. A vegetable milk as claimed in claim 1 in which the milk includes at least one suitable stabiliser, emulsifier and buffer.
3. A vegetable milk as claimed in either of claims 1 or 2 which includes a sweetening agent.
4. A vegetable milk as claimed in claim 3 in which the sweetening agent is sugar.
5. A vegetable milk as claimed in any of the preceding claims which includes a flavouring agent.
6. A vegetable milk as claimed in any of the preceding claims which includes vitamin additives.
7. A vegetable milk as claimed in any of the preceding claims which includes mineral additives.

/8. A vegetable

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